

Abstract

An electric arc welder operated to perform a short circuit welding process between an electrode and a workpiece, where the process comprises a succession of alternate short circuit conditions and arc conditions, with a first current waveform during the short circuit condition and a second voltage waveform during the arc condition. A first waveform generator constructs the first waveform from a series of current pulses controlled by a pulse wave modulator operated at a rate greater than 18 kHz and a second waveform generator constructs the second waveform from a series of current pulses controlled by a pulse wave modulator operated at a rate greater than 18 kHz. The second waveform generator has a circuit to generate the second waveform with a generally constant arc parameter, generally voltage.